

Hail occurred on the 1st, Ill.; 2nd, Ohio; 3rd, N. Y., Iowa; 4th, 5th, 6th, Idaho, Ter.; 7th, 8th, 9th, 10th, Conn.; 11th, 12th, 13th, Kan.; 14th, 15th, Ala.; 16th, Ill.; Mass.; Tex.; 17th, Mass.; Pa.; 18th, 19th, 20th, 21st, 22nd, 23rd, Kan.; Idaho, Ter.; 24th, Kan.; 25th, 26th, Tenn.; 27th, Mass.; Ind.; 28th, Pa.; 29th, 30th, Neb.

Snow.—During the month, snow fell as follows: from the 1st to the 10th, 16 to 19th, and 27th to 30th, snow fell over the entire country from Wyoming and Colorado eastward over the Northwest and Lake region to New England. From the 5th to the 11th, occasional snow fell in Nevada, Utah, New Mexico, Tex., Indian Ter., Mo., N. C., Md., and N. J. From the 13th to the 18th in Nevada, New Mexico. From the 21st to 27th in Idaho, Nevada and New Mexico, and from 29th to 30th in Indian Ter., Tenn., Ky., W. Va., N. C., Va., Md., N. J. At the end of the month the depth of snow was reported as follows: Summit of Mt. Washington, 18 in.; Pike's Peak, 12 in.; in Wisconsin from 1 to 13 in.; in N. Y. and N. J., from $\frac{1}{2}$ to 8 in.; in Mich. and Pa., $\frac{1}{2}$ to 5 in.; in Neb., Dak., Min., Iowa and Ill., 1-10 to 4 in.; in Wyo., Col., Kan., Ind., Ver., and Me., 1-10 to 2 in.; in Ohio, 1-20 to $\frac{1}{2}$ in.; West Va., 1-10; Va., $\frac{1}{2}$ in.

Rainy days.—The number of days on which rain has fallen, as recorded by the Signal Service observers, ranges as follows: New England, 11 to 17; Middle Atlantic States, 11 to 14; South Atlantic States, 9 to 14; East Gulf States, 12 to 16; West Gulf States, 7 to 10; Tennessee and Ohio valley, 12 to 18; Missouri valley, 11 to 17; Upper Mississippi valley, 13 to 19; Upper Lake region, 11 to 20; Lower Lake region, 16 to 22; Rocky Mountain stations, 3 to 9; California, 0 to 8; Oregon, 13 to 23.

Cloudy days.—The number of cloudy days reported during the month by voluntary observers and army surgeons ranges about as follows: New England, 5 to 21; Middle Atlantic States, 5 to 22; South Atlantic States, 3 to 11; East Gulf States, 7 to 16; West Gulf States, 2 to 18; Tennessee and Ohio valley, 2 to 19; Lower Missouri valley, 2 to 17; Upper Mississippi valley, 2 to 19; Upper Lake region, 7 to 18; Lower Lake region, 5 to 19; Rocky Mountain stations, 4 to 12; California, 1 to 17.

RELATIVE HUMIDITY.

The average relative humidity for the month ranges about as follows: For New England, 67 to 77; Middle Atlantic States, 59 to 77; South Atlantic States, 71 to 77; East Gulf States, 68 to 76; West Gulf States, 65 to 72; Tennessee and the Ohio valley, 64 to 73; Lower Lakes, 66 to 78; Upper Lakes, 70 to 82; Upper Mississippi valley, 67 to 80; Lower Missouri valley, 67 to 74; California coast, 55 to 75; Sacramento valley, 70 to 74. High stations report the following average percentages, not corrected for altitude: Cheyenne, 65; Denver, 49; Mt. Washington, 88; Pike's Peak, 63; Salt Lake City, 55; Santa Fe, 49; Winnemucca, 64.

WINDS.

In General.—The prevailing winds at Signal Service stations are shown by the arrows on chart No. II, from which it will be seen that northwesterly or northerly winds have generally prevailed over the entire country, except in the Lake region, where they have been westerly or southerly, along the South Atlantic and East Gulf States, where they have been more northeasterly, and in Oregon and Idaho, where they have been southerly.

Total Movements.—The largest total movements have been as follows: Pikes Peak, 18,131 miles; Cape May, 14,360; Sandy Hook, 13,619; Cape Lookout, 13,298; Kittyhawk, 12,239; Barnegat, 11,958; Cape Hatteras, 11,099; Cape Henry, 11,026; Dodge City, 11,060; Indianola, 11,081; Thatcher's Island, 11,670; Breckenridge, 10,713; North Platte, 10,365; Sandusky, 10,130. On Mount Washington the total movement is not recorded, but hurricane winds prevailed continuously from the 2d to the 9th, from the 12th to the 19th, and again on the 26th and 27th, velocities of 120 miles per hour being frequently recorded.

The least movements have been as follows: La Mesilla, N.W., 1,146 miles; Roseburg, Or., 2,006; Visalia, Cal., 1,301; Boise City, Idaho, 2,793; Lynchburg, 2,633, and Augusta, 3,233.

The highest velocities, in miles per hour, have been as follows: Mt. Washington, N.W., 132 miles on the 12th; Pikes Peak, N., 80, 29th; Wood's Holl, S., 64, and New London, S.W., 63, on the 2d; Bismarck, N., 60, 26th; Buffalo, W., 60, 2nd; Cape Lookout, S.E., 60, on the 8th and 24th; Escanaba, N., 60, 8th; North Platte, N.W., 62, 8th; Philadelphia, E., 60, 24th.

Local Storms, Tornadoes etc., as distinct from extended storm-areas, have occurred as follows: November 2nd, at Mattewan, on the Hudson, buildings were blown down; at Winslow, Seaside, Heightstown and Cony Island, N. J., and Brooklyn, N. Y., considerable damage was done to buildings; a southeast tornado was reported at Long Branch; almost a hurricane at Newport; Fall River, Mass., violent cyclone; Trenton, N. J., at 2 p. m., a "terrific squall occurred, which swept before it trees, fences, telegraph wires, &c., and did considerable damage to buildings; several houses were blown down, and others unroofed"; Hamilton Square, N. J., shortly after 3 o'clock in the afternoon, the wind, which had been severe all day, terminated in a hurricane. It struck the village in the southwest and passed to the northeast, scattering destruction in its path. It seemed to be only a few hundred yards in width, and lasted only a few minutes.

Considerable damage was done to buildings, &c. 18th, Burton, Washington Co., Texas, severe wind-storm at 7 p. m.; a two-story frame building blown into fragments. On the 16th, at Red Bluff, Cal., after a severe thunder-storm, attended by hail, a water-spout was observed, preceded by a low, rumbling noise; the stream of water was distinctly visible and continued for about 15 minutes, when it gradually disappeared. This occurred over the open country, and caused a stream of water, 10 to 15 feet deep, in a ravine where water is unknown, except during heavy rains.

VERIFICATIONS.

Indications.—The detailed comparison of the tri-daily weather indications, with the telegraphic reports for the succeeding twenty-four hours, shows a general percentage of omissions of 0.3 per cent., and of verifications of 87.2 per cent. The percentages of verifications for the four elements have been: Weather, 90.9; wind, 83.3; temperature, 89.2; barometer, 85.3. The percentages of verifications by geographical districts have been: New England, 90.0; Middle Atlantic States, 86.8; South Atlantic States, 85.0; East Gulf States, 86.7; West Gulf States, 87.6; Lower Lake Region, 85.7; Upper Lake Region, 87.6; Tennessee and the Ohio valley, 88.6; Upper Mississippi valley, 86.7; Lower Missouri valley, 87.2.

Of the 3,588 predictions that have been made, 77, or 2.2 per cent., are considered to have entirely failed; 105, or 2.8 per cent., were one-fourth verified; 387, or 10.8 per cent., were half verified; 397, or 11.0 per cent., were three-fourths verified; 2,622, or 72.8 per cent., were fully verified, so far as can be judged from the weather maps.

Cautionary Signals.—During the past month 251 Cautionary Signals have been displayed at 47 stations on the Gulf and Atlantic coasts and on the Lakes, of which 219, or 87.2 per cent, were reported verified within 100 miles of the station. Two signals were ordered up "late" and one was ordered down too soon. Forty-eight cases of high winds, where no signals were displayed, have also been reported from these stations.

Sunsets.—The characteristics of the sky, as indicative of approaching fair or foul weather, have been observed daily at all regular Signal Service stations. Reports from 102 stations show 63 blank or doubtful cases; for the remaining 2997 cases; 2515 (or 83.9 per cent.) were followed by the anticipated weather.

NAVIGATION.

Stages of Water in Rivers.—In the table on chart No. III are given the highest and lowest readings on the Signal Service river-gauges, and dates of same, from which it will be seen that the rivers generally rose towards the end of the month, the highest readings occurring from the 23rd to the 30th. With regard to the close of navigation on rivers and lakes, the following notes are to hand: Red River of the North was frozen over at Pembina on the 5th, and navigation north of Pembina was generally closed after the 9th, but at end of month the river was reported still open at several places. Lake Superior, November 12th, steamer Ontario sailed from Duluth on her last trip; 28th, Marquette, last vessel of season left. Missouri River, Bismarck, 8th, heavy ice in river, navigation about closed on the Upper Missouri; 28th, navigation closed at Bismarck; 29th, river frozen over; Yankton, 11th, ice in river, 29th, frozen over; Omaha, 30th, floating ice commenced to gorge above bridge; Atchison, Kan., 30th, ice gorge—river closed; Leavenworth, 29th, river filled with floating ice, partially frozen over. Upper Mississippi, St. Paul, 6th, floating ice, 27th, closed, 30th, frozen over; La Crosse, 26th, floating ice—navigation closed; Dubuque, 29th, floating ice, 30th, river gorged; Davenport and Burlington, 29th, floating ice, first of season, 30th, navigation closed; Keokuk, 29th, floating ice, canal frozen over, 30th, river full of floating ice. Illinois River, La Salle, 30th, River and Canal frozen over. Rock river, Ill., at Rockford, 6th, frozen over. Lake Ontario, Rochester, 21st, navigation closed. Red River, Shreveport, navigation during entire month good for largest boats.

Special High Tides have prevailed throughout the month along the Atlantic coast. Nov. 2d, Ocean Beach, N. J., inundated and, high tides were reported generally from New Jersey to Maine; at Providence, R. I., and New London, Conn., trains were delayed and damage done to shipping; at Eastport, Me., the wharves were damaged. Portsmouth, N. C., reports remarkably high tides throughout the month. Buffalo, Nov. 2d, high tide, flooding lower portion of city. Chicago, Nov. 8th, lake-front much damaged by high tides; boat-houses demolished and several schooners wrecked.

Special river reports.—The channel of the Missouri river at Omaha still continues to approach the Nebraska shore.

TEMPERATURE OF WATER.

In General.—The temperatures of water, as observed in rivers and harbors, are shown on the chart No. III.

Maximum and Minimum Temperatures.—The highest maxima have been: 84° 2 at Key West; 73° at Galveston; 71° 5 at Charleston; 71° at Jacksonville; 70° at St. Marks and Shreveport. The lowest minima have been: 30° at St. Paul; 31° at Keokuk and La Crosse; 32° at Yankton and Omaha; 33° at Alpena; 34° at Sandusky and Toledo; 36° at Chicago, Detroit, Grand Haven, Marquette and St. Louis.